

THE ROLE OF THE RETROPUBIC OPERATION IN SELECTIVE PROSTATIC SURGERY*

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IN the field of modern surgery, no operations are more susceptible to a wide variety of complications than those used in dealing with the obstructing prostate. Preoperative preparation, the operation itself, and both the immediate and late postoperative courses are subject to major and minor difficulties, and the urologist is constantly on his guard to seek ways and means to overcome them.

Down through the ages, various operations have been devised, modified, and discarded, only in many instances to be later revived and popularized. The swelling stream of antiseptics and antibiotics that has been made available during the past decade has been a tremendous boon to prostatic surgery, though in many instances it has served to befuddle us and at times to give us a false sense of security. The many types of catheters, hæmostatic bags and other hæmostatic agents still further have served to bring about modifications in the various operative techniques so that today it would be hard to find two people removing prostates in the same manner and with the same equipment.

It has often been said that where there are many ways of accomplishing the same end, no one method is entirely satisfactory. I feel sure that no one would dispute that point with regard to prostatic surgery. On the other hand, one cannot deny, that, as in other departments of surgery, the urologist is going about his business with a scientific and open mind which must eventually lead to more satisfactory operations.

How far, then, have we advanced to date? The answer is aptly summed up in the words of David M. Davis of Philadelphia spoken to the American Urological Association at Buffalo, in June, 1947. Dr. Davis stated in effect, that the time has now come when we must stop advocating any one type of prostatic operation, that we can do justice to the patient only by mastering the art of all types of prostatectomy, and, rather than making the patient fit any one par-

ticular operation, choosing the operation in each individual case to fit that particular patient. These words were reiterated and emphasized by J. Hartwell Harrison of Boston, when speaking before the Northeastern Section of the American Urological Association in October, 1948.

We still hear of many urologists advocating the transurethral resection, and talking about the large percentage they do by that method. Others are just as enthusiastic about the one-stage suprapubic operation. Still others, though I believe a dwindling number, feel that most prostates should be removed by the perineal route, and recently we have had a visit from Mr. Millin of London who makes great claims on behalf of the retropubic operation. Nevertheless, I feel that the trend of individual operative isolationism is subsiding, and more and more we are adopting the principles of Davis and Harrison. We have been practising these principles at the Victoria General Hospital and Camp Hill Hospital for the past few years. I am sure it is because of this that we can look upon a rapidly diminishing mortality rate, and upon a morbidity which allows the majority of our patients to be discharged in less than two weeks after operation.

We believe that in order to obtain the best results, one must attain proficiency in at least three methods of attacking the prostate. The choice in many cases may be immaterial. In others, it will be life-saving. The three that we use are transurethral resection, the retropubic and the suprapubic enucleations. If one is to get cures in cases of carcinoma of the prostate, one must also master the radical perineal operation, though the retropubic approach is advocated in some quarters as an alternative.

Transurethral resection for small glands, median lobes, median bars and other fibrotic obstructions is indispensable, and these types make up a high percentage of bladder neck obstructions. When prostatic hypertrophy is associated with large vesical calculi, bladder tumours or diverticuli, the suprapubic transvesical approach is indicated. In cases with poor renal function, producing an elevated, slowly responding blood chemistry, it may be necessary to drain the bladder suprapubically. The later enucleation is more easily done transvesically through the drainage opening, though transurethral resection may be used with advantage in some of these cases.

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There is a large group, however, which may be done by any method, but which, in the interest of the patient, I feel is best handled by the retropubic procedure. It is this operation that I wish to discuss in detail. However, in so doing, I want first to make it clear that this is not a paper designed to show enthusiasm for any one operation to the exclusion of all others; rather it is offered in support of the retropubic operation only insofar as this operation can, and should, be included as a method of prostatectomy in the overall picture of *selective prostatic surgery*.

We have now reached the end of three full years of retropubic surgery, during which 200 prostates have been removed by that method. As this is one of the largest of such series so far published, we thought that a review of our experience with this operation might be of interest and of some value.

We adopted the operation because of the anatomical logic of the approach, despite the controversy that was raging in *The Lancet* following the publication of Mr. Millin's first treatise on the subject. While at first we were disposed to question its value, it did not take long to see that the immediate morbidity was greatly improved, and that patients were experiencing a feeling of well-being much sooner than we had seen with any other type of open operation.

The technique of the operation has been repeatedly published and no attempt will be made here to outline the procedure. However, we have departed from Millin's operation in some minor ways which may be worth presenting:

1. No attempt is made to separate the pre-vesical fascia from the prostatic capsule. We merely suture them as one layer with a running No. 2 chromic catgut suture.
2. We do not pack the lateral recess on each side of the prostate for fear of opening up more of the peri-vesical cellular tissue, and so facilitating infection.
3. We leave the suprapubic drain in for 5 days and the urethral catheter a full week, though we sometimes change to a smaller catheter after 3 or 4 days.

Millin suggested in his original report that retropubic prostatectomy more nearly achieves the perfect operation because it offers the following features:

1. It is an extra-vesical gland removed by an extra-vesical procedure, avoiding suprapubic bladder drainage and the risk of slow-closing or persistent fistulae.
2. It is applicable to all types of glands.
3. It is a quick operation and relatively shock-free.
4. It is anatomically sound—no important organs being interfered with.
5. The morbidity and mortality are low.

6. All the obstructing tissue is removed, thus obviating the possibility of recurrence.

7. The postoperative care is easy on both patients and nurses.

We were unable at first to agree with Millin's first point, namely, the avoidance of the slow-closing suprapubic fistula. We had approximately twenty cases in the first half of our series which drained urine following operation, for several days, and in some cases for as long as four weeks. However, once healed, there was no recurrence such as is sometimes seen with the slow-closing fistula following suprapubic enucleation. The frequency of these fistulae diminished as our technique improved, and in the later cases, there have been comparatively few.

While we realize that this operation *can* be done on all types of glands, we do not feel that it is the *best* operation for some types or for certain patients. We feel that each patient should be judged as an individual with due regard to his age, the size of the gland, his kidney function and his general physical condition, and that the type of operation should be done which is best suited to that individual. At first we felt that for technical reasons it would be best to avoid the operation on obese people. Since then we have operated on several men weighing well over 200 pounds, and many with pendulous abdomens, and are convinced that this type of patient introduces very little difficulty into the operation. We now do not consider obesity a contra-indication to retropubic surgery. Large adenomata come away very easily, middle lobes are ideally enucleated along with the lateral lobes, and even the small fibrotic prostate with calculi does not offer any obstacle to this operation. It is never necessary to use a finger in the rectum to assist in the enucleation.

We have found the average operative time to be about $\frac{3}{4}$ of an hour which is no less than for most types of prostatectomies. We agree that there is relatively little shock. In nearly all of our cases there has been very little blood loss and rarely has it been necessary to transfuse the patient during the operation. The reason for this is that the blood supply to the prostate can usually be seen after the removal of the gland where it is picked up under direct vision and hæmostasis secured by electro-coagulation.

The operation, while being "anatomically sound and no important organs interfered with", is perhaps more difficult technically than the transvesical enucleation. This is due primarily to the troublesome plexus of veins in the region of the bladder neck and the depth at which one has to do the careful suturing of the prostatic capsule. However, with a little patience and caution, this need not cause much concern. The operation is certainly a more neat and tidy procedure and the remark frequently made by those seeing the retropubic enucleation for the first time is, in effect, prostatectomy at last looks like a surgical operation.

Generally speaking, our immediate morbidity has been low though not as low as that following transurethral resection. Infection in the space of Retzius is our deepest concern and in the first half of our series was the main cause of our mortality. From the very nature of the space one might justifiably question the surgical soundness of the operation, as good drainage is difficult, and when the infection is severe, it may be overwhelming. However, by improving our technique, completing a water-tight closure of the prostatic capsule and being sure to remove detached and non-viable pieces of fat, we have practically eliminated severe infection and decreased the morbidity and mortality accordingly.

True, all the obstructing prostatic tissue is removed during the operation in contra-distinction to many transurethral resections, but usually most of the internal sphincter is left after the gland is enucleated. Consequently it is of paramount importance to palpate the bladder neck following the enucleation where one will usually feel a very definite obstruction between the bladder and the prostatic cavity, particularly on the floor. It is necessary, therefore, to cut a large V-shaped wedge out of the floor of the bladder neck. We did not recognize this early in our series with the result that we had several strictures some weeks postoperatively which necessitated the taking of several bites with the resectoscope as if one were resecting a median bar. Since we have been removing this wedge, we have had no postoperative strictures, and without exception the streams have remained full and forceful out of all comparison on the average with other operations.

The postoperative course, from the standpoint of the patient, has been relatively simple and easy. The small amount of bleeding has cut nursing care to a minimum. In our early cases, we used a continuous irrigation by means of a saline drip through a two-way catheter. In many of our recent cases we have eliminated this practice, using only an occasional saline irrigation with a bulb syringe.

The following table shows a break-down of all our prostatic surgery during the past three years. This is included to give an idea of mortality rates and to show the relative position of retropubic prostatectomy in the over-all picture.

PROSTATECTOMIES		
FEBRUARY 1946 — FEBRUARY 1949		
<i>Type of operation</i>	<i>Number</i>	<i>Mortality</i>
Transurethral	305	6 (2.0%)
Suprapubic	115	6 (5.2%)
Retropubic	200	7 (3.5%)
Total	620	19 (3.1%)

It will be seen from this table that the operation of choice in our hands is still the transurethral resection and the reasons are found in the mortality and morbidity rates. We employ this procedure in any case in which we feel that we have a reasonable chance of doing a permanent job.

Our suprapubic operations may be divided into two groups: a two-stage procedure done on patients who were admitted to the hospital in poor physical condition, with renal insufficiency, urinary sepsis, etc., and a one-stage procedure where there was an associated bladder lesion such as a tumour, diverticulum or large calculus.

The retropubic operations in this series fall into three groups: (1) Our early group of cases when we were very cautious, picking our cases carefully, avoiding poor-risk and obese patients, where we might have been at a disadvantage technically. (2) The second group, which can be called our stage of enthusiasm, when we enucleated all moderately and greatly hypertrophied glands by this method. In this group we stretched the operation considerably, doing several poor-risk patients, using chiefly the size of gland as our criterion. This resulted in an increased morbidity and mortality and quickly threw us into (3) the "levelling-off" group, where we are at the present time. At this stage we are doing over 40% of prostatectomies by the retropubic route. Our judg-

ment indicates that this proportion approaches the true relative position of the procedure and is in the best interest of the patient.

The mortality rate of 3.5% in the retropubic group is perhaps not a true indication of the results we are now obtaining. Five of these fatalities occurred in the first half of the series. In the last 100 cases there were only two deaths and there have been none in the last 75.

COMPLICATIONS

1. Infection. This is usually an aftermath of urine leakage through the prostatic capsule. It can be avoided by a proper closure of the capsular incision. This has been to us the most difficult part of the operation, and its success is dependent upon: (a) working in a comparatively bloodless field; (b) making an adequate incision through the capsule according to the size of the gland; (c) taking care during the enucleation to avoid excessive tearing of the part to be sutured; (d) becoming adept in placing sutures in such a poorly located field.

2. Hæmorrhage. There have been no serious hæmorrhages in this series. Some patients have bled postoperatively somewhat more than others but at no time has this reached alarming proportions. Two cases of secondary hæmorrhage occurred on the 10th postoperative day, but both stopped after inserting a catheter and both patients were discharged shortly after the end of the second week.

3. Suprapubic fistula. Early in the series this was a frequent complication. In the last 150 cases only 3 have occurred which prolonged the hospital stay beyond two weeks.

4. Postoperative stricture. This has not caused any concern since we began removing the V-shaped wedge from the floor of the bladder neck.

5. Incontinence. This complication has not occurred in this series of cases.

6. Osteitis pubis. This occurred once in the first 10 cases following urine leakage with infection. There has been none since.

No assessment of prostatic surgery would be complete without paying tribute to the nursing and intern-resident staff. The after-care of any type of prostatic operation is fraught with a variety of dangers, and the outcome of the operation is frequently decided by the alertness of the nurse, intern or resident on duty. Careful, continuous, and expert attention is

essential, and in my opinion, that can only be given by an interested and well-trained hospital in-staff.

CONCLUSION

I have briefly tried to give an impression of our experience with retropubic prostatectomy based on a series of 200 cases in which we developed Millin's technique, varied it slightly as we gained experience, gave the procedure a fair trial, stretched it to the maximum and eventually levelled off to where we now are doing over 40% of our cases by this method. This, we feel, is the proportion of prostatic obstructions which can with safety be handled retropubically and which, when done, gives the patient a smoother convalescence and an excellent final result.

My appreciation is expressed to Dr. F. G. Mack, head of the Department of Urology, Victoria General Hospital, for permission to include his cases in this series for the purpose of a more complete review of the subject.

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ŒSOPHAGEAL VARICES*

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Œsophageal varices present a challenging problem to the surgeon. They constitute the most dangerous complication of portal hypertension; one which is responsible for more than half the deaths in this condition.

It has been known for a long time that varicose veins in the lower œsophagus are secondary to increased pressure in the portal venous system, but the exact mechanism of portal obstruction has been a rather confused subject until recently. The work of Rousselot,¹ Thompson,² and Whipple³ clarifies the picture to a great extent, and it is now apparent that cases of portal bed block fall into two main divisions.

I. *Intrahepatic obstruction* due to obliteration of the portal channels within the liver. This is the commonest form and is exemplified by Laennec's cirrhosis. In this group the liver function is damaged early and this is manifested by bromsulphthalein retention, positive cephalin cholesterol flocculation, impaired hippuric acid synthesis and reversed albumin-globulin ratio.

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